

Revised Appendix A: Act 62 Requirements and Commission Orders Nos. 2020-832 and 2021-429 Requirements

The details of the IRP requirements under Act No. 62 are shown in the following table along with a reference to each section of the Company's 2021 IRP Update demonstrating compliance:

Act No. 62 58-37-40	Requirement	2021 IRP Update Section and Page Number
(B)(1)(a)	a long-term forecast of the utility's sales and peak demand under various reasonable scenarios;	Load Forecasts (p. 31)
(B)(1)(b)	the type of generation technology proposed for a generation facility contained in the plan and the proposed capacity of the generation facility, including fuel cost sensitivities under various reasonable scenarios;	Meeting the Resource Need (p. 33); Fuel Cost Analysis (pp. 50-52)
(B)(1)(c)	projected energy purchased or produced by the utility from a renewable energy resource;	Forecast of Renewable Generation (pp.63-64) and Appendix I (pp. 131-132)
(B)(1)(d)	a summary of the electrical transmission investments planned by the utility;	Transmission Update (p. 30)
(B)(1)(e)	several resource portfolios developed with the purpose of fairly evaluating the range of demand-side, supply-side, storage, and other technologies and services available to meet the utility's service obligations. Such portfolios and evaluations must include an evaluation of low, medium, and high cases for the adoption of renewable energy and cogeneration, energy efficiency, and demand response measures, including consideration of the following: <ul style="list-style-type: none"> (i) customer energy efficiency and demand response programs; (ii) facility retirement assumptions; and (iii) sensitivity analyses related to fuel costs, environmental regulations, and other uncertainties or risks; 	Resource Plan Analysis (pp.32-38)
(B)(1)(f)	data regarding the utility's current generation portfolio, including the age, licensing status, and remaining estimated life of operation for each facility in the portfolio;	The information was provided in the Modified 2020 IRP, Generation Operation Report Update (p.17) remains accurate.
(B)(1)(g)	plans for meeting current and future capacity needs with the cost estimates for all proposed resource portfolios in the plan;	Resource Plans (pp. 34-36); Levelized Cost (p. 41); Rate and Bill Impacts (p.64); Appendix E (p. 114); Appendix K (p. 160)
(B)(1)(h)	an analysis of the cost and reliability impacts of all reasonable options available to meet projected energy and capacity needs; and	Levelized Cost (p.41);Reliability (pp. 54-58)

Act No. 62 58-37-40	Requirement	2021 IRP Update Section and Page Number
(B)(1)(i)	a forecast of the utility's peak demand, details regarding the amount of peak demand reduction the utility expects to achieve, and the actions the utility proposes to take in order to achieve that peak demand reduction.	Load Forecasts (p. 31); Resource Plans (p. 52) Demand Side Management Assumptions (p. 37)
(B)(2)	An integrated resource plan may include distribution resource plans or integrated system operation plans.	Not included

The requirements of this 2021 IRP Update pursuant to Orders Nos. 2020-832 and 2021-429 are shown in the following tables along with a reference to each section of the Company's 2021 IRP Update demonstrating compliance:

Order 2020-832 Page Number	Ordered Requirements	2021 IRP Update Section
16 (Finding of Fact 2)	It is reasonable that, at the time of the filing of Dominion's Modified IRP, Dominion shall be able [to] indicate to the Commission the composition of current and prospective stakeholders [for the IRP Stakeholder Process], and report on any stakeholder meetings that have occurred prior to the filing date.	Stakeholder Process (pp.11-16)
16-17 (Finding of Fact 4)	It is reasonable to require DESC to model a limited set of additional resource plans as specified by SCSBA and to include them in a Modified 2020 IRP filed in this docket within 60 days of the Order.	Resource Plans (pp. 34-36);
17 (Finding of Fact 6) 43-44 (Commission Conclusion)	DESC should include DSM and purchased power as a resource option in the 2021 IRP Update, if achievable.	To be evaluated after full implementation of the PLEXOS resource optimization software.
17 (Finding of Fact 7) 46 (Commission Conclusion)	It is reasonable to require DESC, in its Modified 2020 IRP, to build candidate resource plans to meet its full peaking reserve margin target, and the resource plan analysis should determine what type of resources best meet the peaking increment. It is appropriate for DESC, starting with its 2021 IRP Update, to systematically compare resource options for meeting its peaking reserve margin increment, including all available resources, rather than limiting available resources to a narrow subset.	Reserve Margin (pp. 32)
18 (Finding of Fact 8)	It is reasonable to require DESC to re-run its IRP modeling using the set of assumptions recommended in SCSBA Witness Sercy's Rebuttal Testimony and Sierra Club Witness Derek Stenclik's Rebuttal Testimony, and to include the results of that modeling in its Modified 2020 IRP.	Coal Retirement Analysis (p. 17); Meeting the Resource Need (p. 33); Resource Plan Analysis (p. 35); Demand Side Management

Order 2020-832 Page Number	Ordered Requirements	2021 IRP Update Section
		Assumptions (p. 37).
18 (Finding of Fact 9) 58 (Commission Conclusion)	It is appropriate to require Dominion to work with stakeholders regarding fair inclusion of solar PV's winter capacity value in the 2021 and 2022 IRP Updates.	IRP Stakeholder Advisory Group Meetings (pp. 15-16); Resource Plans (p. 35)
18-19 (Finding of Fact 11) 64 90 (Ordering Paragraph 6.c)	<p>Cost range and minimax regret analyses are simple, appropriate methodologies that can feasibly be implemented in a Modified 2020 IRP. It is reasonable to require DESC to submit a Modified 2020 IRP including a comparison of candidate resource plans employing simple quantitative risk metrics, including cost ranges and regret scores, as recommended by SCSBA Witness Sercy in his direct and rebuttal testimony.</p> <p>The Commission will require DESC to implement the cost range and minimax regret analyses in the Modified 2020 IRP and subsequent updates and will consider more refined and sophisticated risk-adjusted metrics in its 2022 IRP Update.</p> <p>Conduct and include in the Modified 2020 IRP an analysis and comparison of all candidate resource plans using the simple quantitative risk metrics recommended by SCSBA Witness Sercy in his direct and rebuttal testimony, including cost ranges and minimax regret scores.</p>	Mini-Max Regret (p.59); Cost Range Analysis (p.59); Resource Plans Ranked Across All Scenarios (pp.60-61)
19 (Finding of Fact 12)	It is reasonable to require DESC to conduct a revised scenario analysis based on modeling that reflects a wider range of possibilities, as proposed by SCSBA. It is also reasonable to require DESC to include the results of this analysis in a Modified 2020 IRP filed in this docket.	Demand Side Management Assumptions (p.37); Emissions, DSM and Fuel Sensitivity (p. 37)
19 (Finding of Fact 13) 75-76	<p>Accordingly, the Commission finds it is reasonable to require that DESC work with the DSM Advisory Group ("Advisory Group") to conduct a rapid assessment of the cost-effectiveness and achievability of ramping up its current DSM portfolio, such as by expanding programs or increasing spending, to achieve at least a 1% level of savings in the years 2022, 2023, and 2024, and to require that DESC include this analysis in its Modified 2020 IRP. It is also reasonable to require DESC to include in the Modified 2020 IRP action steps it will take to complete the comprehensive DSM evaluation</p> <p>The Commission adopts the recommendation in Step 1 of Witness Hill's Late-Filed Exhibit, which directs DESC to conduct a "rapid assessment" of the cost-effectiveness and achievability of ramping up its current portfolio to achieve at least a 1% level of savings in the years 2022, 2023, and 2024. As outlined in step 2 of that exhibit, DESC must work with the Advisory Group in conducting this "rapid assessment" and must include the results of this "rapid assessment" in its Modified 2020 IRP. The Modified 2020 IRP must also include steps the Company will take to complete the "comprehensive evaluation" discussed below in preparation for including such an evaluation in its 2022 IRP.</p>	IRP Stakeholder Advisory Group Meetings (p. 15); Demand Side Management Assumptions (p.37); Short Term Action Plan Update (p. 70)

Order 2020-832 Page Number	Ordered Requirements	2021 IRP Update Section
<p>91 (Ordering Paragraph 6.e)</p> <p>91 (Ordering Paragraph 6.d)</p>	<p>Consistent with step 1 as identified in Hearing Exhibit 16, conduct a “rapid assessment” of the cost-effectiveness and achievability of ramping up its current portfolio to achieve at least a 1% level of savings in the years 2022, 2023, and 2024, and include the results of this rapid assessment in its Modified 2020 IRP. The Company will work with the DSM Advisory Group and, if desired, a contractor selected with input from the Advisory Group, in preparing this assessment.</p> <p>Develop and include in the Modified 2020 IRP a set of modifications to the Company’s existing DSM portfolio that would achieve at least a 1% level of savings in the years 2022, 2023, and 2024, and screen such measures for cost-effectiveness and achievability</p>	
<p>20 (Finding of Fact 15)</p> <p>91 (Ordering Paragraph 6.f)</p>	<p>It is reasonable to require that DESC include in its Modified 2020 IRP a DSM Action Plan that includes its plans to undertake a comprehensive evaluation of the cost-effectiveness and achievability of DSM portfolios reaching 1% and higher savings, including savings levels of 1.25%, 1.5%, 1.75% and 2%, and to work with the Advisory Group to develop and characterize these levels of DSM savings.</p> <p>Include in its Modified 2020 IRP action steps the Company will take to complete a comprehensive evaluation of the cost-effectiveness and achievability of DSM portfolios ranging from 1% to 2% savings, as identified in steps 3 through 4 of Hearing Exhibit 16.</p>	<p>Short Term Action Plan Update (p. 70)</p>
<p>21 (Finding of Fact 21)</p>	<p>The Proposed IRP does not provide sufficient information for the Commission to evaluate the plain in light of “power supply reliability.” It is reasonable to require that DESC include recent generator performance and other reliability data in its Modified 2020 IRP and future IRPs. It is also reasonable to require DESC to include in its Modified 2020 IRP additional information regarding storm and hurricane-related outages and their impact on resource planning.</p>	<p>Reliability (pp. 54-58); Distribution Transmission Operating Report Update (p. 29)</p>
<p>21-22 (Finding of Fact 23)</p> <p>88</p>	<p>It is reasonable to require DESC to include a three-year Action Plan in its Modified 2020 IRP and in future IRPs. The three-year Action Plan should identify and describe the steps DESC will take to implement its IRP during that three-year period. This Action Plan should include a graphical representation of the planned sequence of actions.</p> <p>Accordingly, DESC shall include in its Modified 2020 IRP and in future IRPs a three-year Action Plan identifying and describing the steps it will take to implement its IRP during that three-year period, including but not limited to additional analyses, changes to its methodology, issuance of Requests for Proposals, modifications to its DSM portfolio, and applications for new generating facilities under the Siting Act. The Action Plan shall include a graphic representation of the sequencing of its actions. The Action Plan in the Modified 2020 IRP shall include, at a minimum, the DSM Action Plan discussed elsewhere in this Order; the Company’s process for selecting a capacity expansion model, in collaboration with stakeholders; the Company’s plans to conduct retirement studies required by this Order; as well as any actions related to competitive procurement of renewable energy resources that may be indicated based on the additional production cost modeling that the Commission is requiring in this Order.</p>	<p>Short Term Action Plan Update (pp. 68-72)</p>

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Order 2020-832 Page Number	Ordered Requirements	2021 IRP Update Section
90 (Ordering Paragraph 6.b.ii)	<p>shall also adopt Mr. Sercy's recommended approach to modeling battery storage PPA costs, as described herein.</p> <p>For battery storage PPAs, use the NREL ATB's low storage cost case (including capital and fixed O&M 13 costs) with the same 22% ITC safe harbor assumptions employed for solar PV PPAs.</p>	
53 90 (Ordering Paragraph 6.b.vi)	<p>While the Company responded to ORS' recommendation to reassess its long-term continuing capital cost –de-escalation in its Supplemental IRP, we are persuaded by the testimony of Sierra Club Witness Stencilik that the Company implemented the two different escalation rates incorrectly which led to a spike in capital costs for both solar PV and BESS in 2031 and onwards. The Company is required to correct this error in a Modified 2020 IRP.</p> <p>For its long-term continuing capital cost de-escalation for both solar PV and BESS, correct its implementation of the two different escalation rates consistent with Mr. Stencilik's surrebuttal testimony.</p>	Resource Plans (pp. 34-36)
56 90 (Ordering Paragraph 6.b.v)	<p>For purposes of the IRP, we agree with the recommendation of Sierra Club Witness Stencilik and ORS Witnesses Sandomato and Hayet that the Company should include in a Modified 202 IRP industry accepted ICT capital cost assumptions, such as NREL. We would also note that the Company relied on data from NREL for determining its future cost of renewable energy projects, so it should do the same for the ICT.</p> <p>For ICT, use industry accepted ICT capital cost assumptions, such as NREL.</p>	Resource Plans (pp. 34-36)
58 90 (Ordering Paragraph 6.b.iii)	<p>In its Modified 2020 IRP, DESC shall calculate the current ELCC capacity value for solar based on the current level of operational solar on DESC's system, and DESC shall apply that value in its modeling of PV resources.</p> <p>Correct the incremental flexible solar PPA capacity value assumptions to reflect the ELCC value specific to the existing system penetration level of incremental flexible solar PV.</p>	Appendix C (p.80)
60 90 (Ordering Paragraph 6.b.iv)	<p>Under the circumstances of this IRP, the Commission concludes that consistent with its finding in Order No. 2020-244 at 4, a solar integration cost of \$0.96/MWh should be used by DESC when performing the updated resource portfolio modeling required herein, both in the Modified 2020 IRP and in the additional modeling to be produced within thirty (30) days (discussed further below).</p> <p>Assume integration costs of \$0.96/MWh for solar PV, until an updated, Commission-approved methodology for calculating solar integration costs is available.</p>	Meeting the Base Resource Need (p. 33)
71	The Commission will therefore direct DESC, in the production cost modeling conducted for the Modified 2020 IRP, to use the AEO low, reference, and high gas prices described by Mr. Sercy in place of DESC's low, base, and high gas prices.	Emissions DSM and Fuel Sensitivity (pp. 37-38)

Order 2020-832 Page Number	Ordered Requirements	2021 IRP Update Section
90 (Ordering Paragraph 6.b.vii)	Re-run its production cost modeling using the AEO low, reference, and high gas prices described by SCSBA Witness Sercy in his direct testimony, and using the AEO High CO ₂ case, also as detailed in Mr. Sercy's direct testimony.	
71	The Commission will therefore direct DESC, in its Modified 2020 IRP and future updates, to use the AEO high CO ₂ case described by Mr. Sercy in place of DESC's \$25 CO ₂ case, in the revised cost analysis.	Emissions DSM and Fuel Sensitivity (pp. 37-38)
90 (Ordering Paragraph 6.b.vii)	Re-run its production cost modeling using the AEO low, reference, and high gas prices described by SCSBA Witness Sercy in his direct testimony, and using the AEO High CO ₂ case, also as detailed in Mr. Sercy's direct testimony.	
81	For that reason, the Commission adopts Witness Sommer's recommendation that DESC be required to calculate the rate and bill impacts of its various portfolios in the IRP, rather than just a levelized NPV of revenue requirements. DESC must include such an evaluation in its Modified 2020 IRP and in future IRPs and IRP Updates.	Rate and Bill Impacts (pp. 64-67)
81	DESC is directed to revise its 2020 IRP to include further analysis and consideration for how state or federal environmental regulations, including the Coal Combustion Residuals rule, the Steam Electric Power Generating Effluent Guidelines and Standards, National Ambient Air Quality Standards, and current and potential future greenhouse gas-related rules, might affect DESC's generating units and resource choices.	Environmental Compliance (p. 26)
88	In addition to the Action Plan, Dominion shall explain how the IRP is integrated into other planning at the company by subdivision, division, and department within the Company.	No Change from the discussion in the 2020 Modified IRP
93-94 (Ordering Paragraph 10)	In its 2020 Modified IRP, 2021 IRP Update, and subsequent annual Updates prepared pursuant to S.C. Code Ann. § 58-37-41(D)(1), DESC shall update its planning assumptions relating to the energy and demand forecast, commodity fuel price inputs, renewable energy forecast, energy efficiency and demand-side management forecasts, and changes to projected retirement dates of existing units.	Load Forecast (p. 31); Resource Plans Analysis (pp. 32, 35-38, 37-38)

Order 2021-429 Page Number	Ordered	2021 IRP Update Section
18 (Order Paragraph 2)	DESC is ordered to include near term solar and storage in its 2021 IRP Update	Resource Plans Analysis (pp. 35-36)
18 (Order Paragraph 3)	DESC is ordered to provide substantive details of the CT Plan and include the CT Plan in its revised modeling.	Executive Summary (p. 7); The CT Replacement Plan (pp.19-22)
18 (Order Paragraph 4)	DESC shall include resource plans that represent "the range of demand-side, supply-side, storage, and other technologies and services available" to meet the utility's obligations. DESC shall also include "plans for meeting current and future capacity needs with cost estimates for all proposed resource portfolios in the plan."	Resource Plans (pp. 34-36); Levelized Cost (p. 41); Rate and Bill Impacts (p.64); Appendix E (p. 114); Appendix K (p. 160)

Order 2021-429 Page Number	Ordered	2021 IRP Update Section
18-19 (Order Paragraph 5)	DESC is ordered to adjust its Reliability Factors consistent with Appendix A of the filed "Joint Comments of South Carolina Coastal Conservation League, Southern Alliance for Clean Energy, Carolinas Clean Energy Business Alliance and Sierra Club." DESC is required to adhere to Order No. 2020-832 in its application of the approved Minimax regrets and cost range analyses, as well as the plan selection criteria required by the Commission in its 2021 IRP Update as well as in all future IRPs. In its 2021 IRP Update as well as in all future IRPs, DESC shall use Dr. Sercy's Minimax Regrets and Cost Range methodologies in addition to using the "average ranking" approach in order to provide information related to risk using these various approaches.	Resource Plan Analysis (p. 32)
19 (Ordering Paragraph 7)	DESC is directed to employ a reasonable levelized cost of saved energy (LCSE) which is comparable with industry standards in conducting its upcoming Market Potential Study and in developing future IRPs starting with the 2021 IRP Update.	IRP Stakeholder Advisory Group Meetings (pp. 12, 15-16); Resource Plan Analysis (p. 32)
19 (Ordering Paragraph 8)	DESC is also ordered to include load forecasts and the integration of Energy Efficiency impacts with its stakeholders as part of the 2021 IRP Update. DESC is also required to present realistic and levelized DSM costs in all future IRPs starting with the 2021 IRP Update.	
19 (Ordering Paragraph 9)	DESC is directed to use marginal line losses in the calculation of avoided costs and in the translation of energy savings from the Market Potential Study to energy savings in future IRP modeling beginning with the 2021 IRP Update.	
20 (Ordering Paragraph 10)	DESC is required to use "cost effective, reasonable and achievable" as the standard going forward for evaluating the potential for higher savings portfolios in future IRPs and updates beginning with the 2021 IRP Update.	